

AMENDMENTS TO THE CLAIMS

Replace the claims with the following rewritten listing:

1. (Currently Amended) A repeater, comprising: ~~wherein~~ a cell identifier generator module ~~is added to~~ in a downlink circuit structure of said repeater, wherein said cell identifier generator module ~~comprising:~~

a synchronization searching unit for searching for a ~~synchronization signal of~~
a base station pilot signal;

a time delay unit for generating a fixed delay according to the searching
result from the synchronization searching unit; and

~~between a frame start time of a cell identifier signal and a frame start time of~~
~~a base station pilot signal, and~~ a cell identifier signal generating unit for generating a
cell identifier signal ~~code word~~;

wherein said time delay unit generating the fixed delay ~~delay between a~~
frame start time of the base station pilot signal and a frame start time of the cell
identifier signal is the fixed delay ~~according to the searching result of the~~
~~synchronization searching unit.~~

2. (Currently Amended) ~~A~~ The repeater according to claim 1, wherein: an
input end of said cell identifier generator module is connected to a low-noise amplifier
module of the repeater, and an output end of said cell identifier generator module is
connected to a power amplifier module of the repeater via a coupler.

3. (Currently Amended) ~~A~~ The repeater according to claim 2, wherein said cell
identifier generator module also comprises: a down-conversion unit, an A/D (Analog to
Digital) conversion unit, a D/A (Digital to Analog) conversion unit, ~~an~~ an up-conversion
unit, and a filtering unit;

wherein said down-conversion unit is designed to carry out frequency conversion

from RF to intermediate frequency for received signals; said A/D conversion unit is designed to carry out sampling and quantification for the intermediate frequency signals; said D/A conversion unit is designed to carry out D/A conversion to obtain a base-band form of the cell identifier signal; said up-conversion unit is designed to carry out conversion from base-band to RF for the cell identifier signal; said filtering unit is designed to carry out band restriction for the cell identifier signal to control frequency leakage to adjacent frequency; said cell identifier signal is coupled to an input end of the power amplifier in the downlink circuit structure of the repeater via said D/A unit, said up-conversion unit, and said filtering unit.

4. (Currently Amended) A method for positioning a mobile station using the repeater according to claim 1, comprising:

(1) ~~Issuing-issuing~~ a cell identifier signal ~~code word~~, a fixed delay, and a search window width from the repeater for the mobile station according to in response to a positioning request offrom the mobile station, wherein the cell identifier signal is searched in a time range defined by the search window width and the fixed delay;

(2) ~~The-the~~ mobile station utilizing a TDOA (Time Difference Of Arrival) ~~measuring function to measure-measuring~~ a Time Difference Of Arrival (TDOAs) ~~ofbetween the~~ a-cell identifier signal and a base station pilot signal and reporting the measured data TDOA;

(3) ~~Determining-determining~~ whether there is a time difference consistent to a fixed delay between the cell identifier signal and the base station pilot signal according to the reported data from the mobile station the value of TDOA equals to the fixed delay; if so, going to step (4); otherwise going to step (7);

(4) ~~Reading-calibrated value~~ TOA_e of TOA (Time Of Arrival) between a repeater and the base station, and initiating an RTT (Round Trip Time) measuring function of the base station to measure RTT of the mobile station, wherein $TOA_e = (1/2) \text{ RTT}$;

(5) ~~Converting the measured RTT reported from the base station into measured~~

value TOA_m of TOA, wherein $TOA_m = (1/2) \text{ RTT}$, which is the measuring a Time Of Arrival (TOA), TOA_m , from the mobile station to the base station viathrough the repeater;

(5) ~~subtracting the calibrated value TOA_c of TOA from the repeater to the base station from TOA_m and taking the result as TOA TOA_{trans} from the mobile station to the repeater, wherein determining a value of TOA_{trans} with the formula: $TOA_{trans} = TOA_m - TOA_c$, wherein the TOA_{trans} means TOA from the mobile station to the repeater, and the TOA_c means a calibrated TOA from the repeater to the base station;~~

(6) ~~Calculating~~ calculating the distance between the mobile station and the repeater through multiplying TOA_{trans} with light velocity; and

(7) ~~Determining~~ determining the position of the mobile station with the mobile station positioning method.

5. (Currently Amended) A The method for positioning a mobile station according to claim 4, wherein said cell identifier signal is a scrambling code of the base station, which is different from that of adjacent base stations.

6. (Currently Amended) A The method for positioning a mobile station according to claim 4, wherein in the step (7), said mobile station is positioning method in step (7) is via TDOA positioning method.

7. (Currently Amended) A The method for positioning a mobile station according to claim 4, wherein in the step (7), said mobile station is positioning method in step (7) is via TOA positioning method.